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**GEOGRAPHY**

**9696/23**

Paper 2 Advanced Physical Options

**October/November 2015**

**1 hour 30 minutes**

No Additional Materials are required.

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**READ THESE INSTRUCTIONS FIRST**

An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **two** questions only. Each question answered **must** be from a different topic.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.

All the Figures and the Photographs referred to in the questions are contained in the Insert.

The number of marks is given in brackets [ ] at the end of each question or part question.



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This document consists of **3** printed pages, **1** blank page and **2** Inserts.

### Tropical environments

Only **one** question may be answered from this topic.

- 1 (a) Describe and explain the characteristics and distribution of rainfall in **both** the humid and seasonally humid tropics. [10]

- (b) Fig. 1 shows a model of nutrient cycling in an ecosystem.

For **either** a tropical rainforest **or** a savanna ecosystem, describe and explain the nature of nutrient cycling, stores and flows. For your chosen ecosystem, how and to what extent will nutrient cycling, stores and flows be affected by human activities? [15]

- 2 (a) Describe the vegetation of savanna ecosystems. Explain how vegetation may change with distance away from the tropical rainforest margin. [10]

- (b) Describe the weathering processes that occur in humid and seasonally humid tropical environments. To what extent do weathering processes determine the development of landforms in areas of **either** granite **or** limestone in humid and seasonally humid tropical environments? [15]

### Coastal environments

Only **one** question may be answered from this topic.

- 3 (a) Describe how waves are generated and explain what determines the energy and nature of waves breaking on shorelines. [10]

- (b) Fig. 2 shows factors and processes affecting the development of coastal landforms.

Evaluate the roles of factors and processes in the development of different cliff profiles and other coastal erosion features along a stretch, or stretches, of coastline. [15]

- 4 (a) Describe the nature of coral atolls and explain theories of their formation. [10]

- (b) Explain the development of coastal spits and dune systems. Evaluate measures to manage physical and human threats to coastal spits and dune systems. [15]

### Hazardous environments

Only **one** question may be answered from this topic.

- 5 (a) Explain how volcanic eruptions may be predicted. Why is the prediction of volcanic eruptions more successful than the prediction of earthquakes? [10]
- (b) Explain how **three** different types of mass movement may occur on slopes and describe their hazardous impact. To what extent can the hazardous impacts be managed for **one** of your chosen types of mass movement? [15]
- 6 (a) Explain why the hazardous impacts of tropical storms (cyclones) are usually greater than those of tornadoes. [10]
- (b) Fig. 3 shows the global distribution of earthquakes of magnitude 8 or greater since 1900.
- Explain the distribution of earthquakes shown in Fig. 3. Evaluate the impact of large magnitude earthquakes on lives and property. [15]

### Arid and semi-arid environments

Only **one** question may be answered from this topic.

- 7 (a) Explain the processes of weathering which operate in hot arid and semi-arid environments and their effect on rocks. [10]
- (b) With reference to hot desert landforms, evaluate the roles of wind and running water in their development. [15]
- 8 (a) Describe the climatic characteristics of hot arid environments and explain the distribution of hot arid areas in **one** continent. [10]
- (b) Photographs A and B show some impacts of desertification in a semi-arid environment.
- Explain the physical and human factors that may lead to desertification as shown in Photographs A and B. Evaluate a scheme, or schemes, to sustainably manage semi-arid areas threatened by desertification. [15]

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